

Remarks

This case has been carefully considered in light of the Office Action dated July 14, 2005 wherein: the specification was objected to; claims 1-6 and 11-13 were rejected under 35 USC 102(b) on Kanfi (US Pat. No. 5,559,991); claim 6 was rejected under 35 USC 102(e) on Sarkar (US 2004/0158730 A1); and claims 7-10 were rejected under 35 USC 102(b) on Uemura et al. (US Pat. No. 5,720,026). Reconsideration is respectfully requested.

The specification has been amended to move paragraph [0012] from under the heading **Background of the Invention** to paragraph [0029a] under the heading **Summary of the Invention** in accordance with the Examiner's instructions. The objection to the disclosure is thus believed to be overcome.

Claims 1, 5, and 11-13 have been amended. Claim 4 has been cancelled.

Claims 1-3 and 5-13 remain pending in this case.

Claims 1 and 11-13 have been amended to contain the limitations of cancelled claim 4. Claim 5 has been amended to correct its dependency from cancelled claim 4 to claim 1 and to clarify terminology. No new matter has been added.

The applicants respectfully traverse the rejection of claims 1-3, 5-6, and 11-13 under 35 USC 102(b) on Kanfi for the following reasons.

Kanfi describes a facility for storing in backup memory only those blocks of a file that differ from corresponding blocks of an earlier version of the file. In particular, Kanfi describes dividing the file into blocks, then computing a signature for each block. The signatures are stored with the archived data and compared during the backup. Only the blocks for which the signatures have changed need to be backed up.

In contrast to Kanfi, who relies on heuristic data signatures that must be computed and stored for each data block, the applicants do not use data signatures to determine whether a block has changed. Indeed, the applicants describe the disadvantages of using data signatures in paragraph [0007] of the specification. On the other hand, the applicants do not use heuristic data

signatures, but rather provide a method for performing block level incremental backup operations for a file comprising, as recited in amended claims 1 and 11-13:

.....processing a write request relevant to at least one block of said file by storing changes in information for said file and by providing an indication that information stored in said at least one block of said file is new data; and

backing up said file using at least one select block having said indication that information stored in said at least one block of said file is new data , said backing up of at least one select block being further determined based on a time stamp associated with said at least one block.

Thus, Kanfi's method of computing heuristic signatures for incremental computer file backup differs completely from the applicants, who specifically avoid heuristic data signatures, e.g., by efficiently backing up files using time stamp information, as recited in the amended claims and set forth above.

Claims 1-3, 5-6, and 11-13, particularly as amended, are thus believed to be patentably distinct from Kanfi under 35 USC 102.

The applicants respectfully traverse the rejection of claim 6 under 35 USC 102(e) on Sarkar for the following reasons.

Sarkar describes a method for running anti-virus software for a file system that is accessible by a client through a server. In particular, Sarkar describes a method that creates a Point-in-Time Copy (PiTC) of the **entire** file system, and then uses the PiTC to determine if a file has changed since the last time the anti-virus software scanned it.

In contrast to Sarkar, the applicants' invention as recited in claim 6 involves reading block-level changes that have occurred between two points in time; i.e., "providing two time stamps to a file system in a read request; and returning information with respect to changes in said block made between times indicated by said two time stamps." Indeed, the applicants' block-level incremental backups, as recited in claim 6, are totally different from Sarkar's whole-file virus scans. Further to this point, Sarkar's anti-virus scan determines whether a current PiTC of the **entire file** is different from an earlier PiTC of the **entire file**; he does not teach or suggest

any way of determining only the blocks that have changed. As described, this is in stark contrast to the applicants' invention, as recited in claim 6, which involves time stamps for block-level incremental backups.

Claim 6 is thus believed to be patentably distinct from Sarkar under 35 USC 102(e).

The applicants respectfully traverse the rejection of claims 7-10 under 35 USC 102(b) on Uemura for the following reasons.

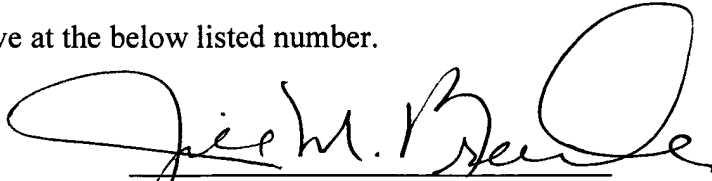
Uemura describes an incremental backup system, including a storage unit that is accessed in block units of predetermined size for storing data to be backed up. Uemura uses difference map information to record the latest backup generation number to indicate when data in each block has been updated. Uemura further uses a management mechanism for managing backup generation numbers for each block.

In contrast to Uemura who does not teach or suggest dealing with sparse files, the applicants' invention as recited in claims 7-10 is directed specifically to backing up sparse files. In particular, the applicants' method for backing up sparse files, as recited in claims 7-10, comprises "writing to a backup file in a write request to a file system in which at least one user specified portion of said file is defined to have a specified value and in which the size of said at least one portion is specified by said user." The applicants' method for backing up sparse files is different from Uemura's latest update generation management mechanism that manages backup generation numbers for each block.

Claims 7-10 are thus believed to be patentable over Uemura under 35 USC 102.

For all the above reasons, claims 1-3, 5-6, and 11-13, particularly as amended, are believed to be patentable to the applicants. Reconsideration and allowance of these claims are thus respectfully requested.

Should the Examiner have any further concerns regarding this application, he is invited to contact Applicants' representative at the below listed number.

A handwritten signature in black ink, appearing to read "Jill M. Breedlove", written over a horizontal line.

Jill M. Breedlove
Attorney for Applicants
Registration No.: 32,684

Dated: October 14, 2005.

HESLIN ROTHENBERG FARLEY & MESITI P.C.
5 Columbia Circle
Albany, New York 12203-5160
Telephone: (518) 452-5600
Facsimile: (518) 452-5579